

LPDES PERMIT NO. LA0097161 (Agency Interest No. 2218)**LPDES FACT SHEET and RATIONALE
FOR THE DRAFT LOUISIANA POLLUTANT DISCHARGE ELIMINATION SYSTEM
(LPDES) PERMIT TO DISCHARGE TO WATERS OF LOUISIANA**

- I. Company/Facility Name:** Praxair, Inc.
Geismar Facility
P.O. Box 230
Geismar, Louisiana 70734
- II. Issuing Office:** Louisiana Department of Environmental Quality (LDEQ)
Office of Environmental Services
Water Permits Division
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Date Prepared: November 1, 2007

IV. Permit Action/Status:

A. Reason For Permit Action:

Proposed reissuance of a Louisiana Pollutant Discharge Elimination System (LPDES) permit for a 5-year term following regulations promulgated at LAC 33:IX.2365/40 CFR 122.46*.

- * In order to ease the transition from NPDES to LPDES permits, dual regulatory references are provided where applicable. The LAC references are the legal references while the 40 CFR references are presented for informational purposes only. In most cases, LAC language is based on and is identical to the 40 CFR language. 40 CFR Parts 401, and 405-471 have been adopted by reference at LAC 33:IX.4903 and will not have dual references. In addition, state standards (LAC 33:IX. Chapter 11) will not have dual references.

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LAC 33:IX Citations: Unless otherwise stated, citations to LAC 33:IX refer to promulgated regulations listed at Louisiana Administrative Code, Title 33, Part IX.

40 CFR Citations: Unless otherwise stated, citations to 40 CFR refer to promulgated regulations listed at Title 40, Code of Federal Regulations in accordance with the dates specified at LAC 33:IX.4901, 4903, and 2301.F.

- B. LPDES permit: Permit effective date: May 1, 2002
Permit expiration date: April 30, 2007
EPA has not retained enforcement authority.
- C. LPDES application received on October 18, 2006, and additional information submitted July 24, 2007.

V. Facility Information:

- A. Location – At Highway 75, Avenue E, Geismar, Ascension Parish
(Latitude 30°11'58", Longitude 91°1'49")
- B. Applicant Activity - Praxair, Inc. manufactures "syngas" by the steam reformer process, using steam and natural gas. The "syngas" is sent through different processes that produce hydrogen gas, liquid and gaseous carbon monoxide, methanol, methane and formaldehyde as final products. Excess steam, from the steam reformer process, is also sold as a product. All final products are shipped to customers either by pipeline or transport trailer.
- C. Technology Basis - (40 CFR Chapter 1, Subchapter N/Parts 401-402, and 404-471 have been adopted by reference at LAC 33:IX.4903)

Guideline Applicability

Guidelines found in 40 CFR 414 are applicable to the manufacturing of organic chemical products such as methane, methanol, and formaldehyde. However, these guidelines are only applicable to process wastewaters. Since no process wastewaters are discharged from Praxair's Geismar facility, the effluent guidelines have not been applied in this permit.

Other sources of technology based limits:

- LDEQ Stormwater Guidance, letter dated 6/17/87, from J. Dale Givens (LDEQ) to Myron Knudson (EPA Region 6).
- Best Professional Judgement

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D. Fee Rate -

1. Fee Rating Facility Type: Minor
2. Complexity Type: II, (BPJ – small operation with no process wastewater discharges)
3. Wastewater Type: III
4. SIC code: 2813 and 2869

VI. **Receiving Waters:** New River via local drainage, thence to Petite Amite River, thence to Blind River

- A. TSS (15%), mg/L: 4.3*
- B. Average Hardness, mg/L CaCO₃: 292.1*
- C. Critical Flow, cfs: 0.1*
- D. Mixing Zone Fraction: 1
- E. Harmonic Mean Flow, cfs: 1.0*
- F. River Basin: Lake Pontchartrain, Segment No.: 040401
- G. Designated Uses: primary contact recreation, secondary contact recreation, fish and wildlife propagation, and outstanding natural resource waters.

* Stream data based upon the following: Water Quality Management Plan, Volume 5A, 1994; LAC 33:IX Chapter 11, and from recommendations from the Engineering Section (Memo from Will Barlett dated June 14, 2007). Hardness and 15% TSS data come from sampling site #2293 on the New River at the bridge on La. Highway 73, about 4.3 miles west of Gonzales.

VII. **Outfall Information:**

Outfall 001

- A. Type of wastewater – Cooling tower blowdown from the formaldehyde, methanol and Unit 6 HYCO reformer units; boiler blowdown from the formaldehyde and methanol units, and Unit 6 HYCO reformer boilers, process and non-process area stormwater runoff; and reverse osmosis rinse water
- B. Location – At the point of discharge from the holding tank to the railroad ditch prior to mixing with other waters. Wastewater is held in a tank system and pumped to a neighboring facility (Rubicon) under normal circumstances. If Rubicon can not use all of the water, the water is discharged via Outfall 001 of Praxair's permit.

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- C. Treatment – none
- D. Flow – 0.074 MGD (Avg)
- E. Receiving waters – New River via local drainage, thence to Petite Amite River, thence to Blind River
- F. Basin and segment – Lake Pontchartrain Basin, Segment 040401

Outfall 003

- A. Type of wastewater – Process and non-process area stormwater runoff
- B. Location – At the point of discharge from the stormwater sump to the railroad ditch prior to combining with other waters
- C. Treatment – none
- D. Flow – varies with rainfall
- E. Receiving waters – New River via local drainage, thence to Petite Amite River, thence to Blind River
- F. Basin and segment – Lake Pontchartrain Basin, Segment 040401

Outfall 008

- A. Type of wastewater – Process and non-process area stormwater; and emergency discharge cooling tower basin overflow (under normal operating conditions, all cooling tower discharges flow to the tank system for discharge to either Rubicon or Outfall 001, however, during heavy rainfall, the cooling tower basin has the potential to overflow).
- B. Location – At the point of discharge to the railroad ditch at the northeast corner of the west plant area prior to mixing with other waters.
- C. Treatment – none

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- D. Flow – varies with rainfall
- E. Receiving waters – New River via local drainage, thence to Petite Amite River, thence to Blind Rive
- F. Basin and segment – Lake Pontchartrain Basin, Segment 040401

Outfall 011

- A. Type of wastewater – Process and non-process area stormwater runoff
- B. Location – At the point of discharge to the southeast railroad ditch prior to mixing with other waters.
- C. Treatment – none
- D. Flow – Varies with rainfall
- E. Receiving waters – New River via local drainage, thence to Petite Amite River, thence to Blind Rive
- F. Basin and segment – Lake Pontchartrain Basin, Segment 040401

Outfall 012

- A. Type of wastewater – Process and non-process area stormwater runoff, steam condensate, and cooling tower blowdown from Unit 3 (This wastewater may discharge either to Rubicon or via Outfall 012 of Praxair's permit)
- B. Location – At the point of discharge to the east railroad ditch prior to mixing with other waters.
- C. Treatment – none
- D. Flow – Varies with rainfall
- E. Receiving waters – New River via local drainage, thence to Petite Amite River, thence to Blind Rive

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F. Basin and segment – Lake Pontchartrain Basin, Segment 040401

VIII. Proposed Permit Limits and Rationale:

The specific effluent limitations and/or conditions will be found in the draft permit. Development and calculation of permit limits are detailed in the Permit Limit Rationale section below.

The following section sets forth the principal facts and the significant factual, legal, methodological, and policy questions considered in preparing the draft permit. Also set forth are any calculations or other explanations of the derivation of specific effluent limitations and conditions, including a citation to the applicable effluent limitation guideline or performance standard provisions as required under LAC 33:IX.2707/40 CFR Part 122.44 and reasons why they are applicable or an explanation of how the alternate effluent limitations were developed.

A. CHANGES FROM PREVIOUS PERMIT

1. TSS reporting requirements have been added to all outfalls due to the receiving stream's 303(d) status (impairment for sedimentation/siltation and turbidity).
2. The monitoring frequency requirements for pH at Outfalls 001, 003, 008, 011, and 012 have been increased to 1/ 2 weeks, 1/month, 1/ 2 weeks, 1/month and 1/ 2 weeks, respectively. The previous quarterly monitoring frequency for pH found at all outfalls is believed to have been established in the permit in error. The newly established frequencies are consistent with the monitoring frequencies for the other parameters at each outfall.

B. TECHNOLOGY-BASED VERSUS WATER QUALITY STANDARDS-BASED EFFLUENT LIMITATIONS AND CONDITIONS

Following regulations promulgated at LAC 33:IX.2707.L.2.b/40 CFR Part 122.44(l)(2)(ii), the draft permit limits are based on either technology-based effluent limits pursuant to LAC 33:IX.2707.A/40 CFR Part 122.44(a) or on State water quality standards and requirements pursuant to LAC 33:IX.2707.D/40 CFR Part 122.44(d), whichever are more stringent.

TECHNOLOGY-BASED EFFLUENT LIMITATIONS AND CONDITIONS

Regulations promulgated at LAC 33:IX.2707.A/40 CFR Part 122.44(a) require technology-based effluent limitations to be placed in LPDES permits based on effluent limitations guidelines where applicable, on BPJ (best professional judgement) in the absence of guidelines, or on a combination of the two. The following is a rationale for the limitations established in the permit.

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Praxair's effluent limitations were established in accordance with Best Professional Judgment (BPJ). No effluent guidelines were applicable to the discharges at Praxair.

Proposed effluent limitations and basis of permit limitations are found below:

Outfall 001 - Cooling tower blowdown from the formaldehyde, methanol units, and Unit 6 HYCO reformer units; boiler blowdown from the formaldehyde, methanol units, and Unit 6 HYCO reformer boilers, process and non-process area stormwater runoff; and reverse osmosis rinse water

Parameter	Effluent Limitations		Monitoring Freq	Reference
	Monthly Avg	Daily Max		
Flow – MGD	Report	Report	1/ 2 weeks	LAC 33:IX.2707.1.1.b
Total Residual Chlorine	---	1.5 mg/l	1/ 2 weeks	Previous permit
TOC	---	50 mg/l	1/ 2 weeks	Previous permit and LDEQ Stormwater Guidance ⁽¹⁾
Oil & Grease	---	15 mg/l	1/ 2 weeks	Previous permit and LDEQ Stormwater Guidance ⁽¹⁾
TSS	---	Report	1/quarter	BPJ ⁽²⁾
pH	6.0 s.u. (Min)	9.0 s.u. (Max)	1/ 2 weeks	Previous permit and LDEQ Stormwater Guidance ⁽¹⁾

⁽¹⁾ LDEQ Stormwater Guidance, letter dated 6/17/87, from J. Dale Givens (LDEQ) to Myron Knudson (EPA Region 6)

⁽²⁾ Reporting requirements for TSS have been established in the permit due to the receiving waterbody's 303(d) impairment for sedimentation/siltation and turbidity.

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Outfall 003 - Process and non-process area stormwater runoff

Parameter	Effluent Limitations		Monitoring Freq	Reference
	<i>Monthly Avg</i>	<i>Daily Max</i>		
Flow – MGD	Report	Report	1/month	LAC 33:IX.2707.1.1.b
TOC	---	50 mg/l	1/month	Previous permit and LDEQ Stormwater Guidance ⁽¹⁾
Oil & Grease	---	15 mg/l	1/month	Previous permit and LDEQ Stormwater Guidance ⁽¹⁾
TSS	---	Report	1/quarter	BPJ ⁽²⁾
pH	6.0 s.u. (Min)	9.0 s.u. (Max)	1/month	Previous permit and LDEQ Stormwater Guidance ⁽¹⁾

⁽¹⁾ LDEQ Stormwater Guidance, letter dated 6/17/87, from J. Dale Givens (LDEQ) to Myron Knudson (EPA Region 6)

⁽²⁾ Reporting requirements for TSS have been established in the permit due to the receiving waterbody's 303(d) impairment for sedimentation/siltation and turbidity.

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Outfall 008 - Process and non-process area stormwater; and emergency discharge of cooling tower basin overflow

Parameter	Effluent Limitations		Monitoring Freq	Reference
	Monthly Avg	Daily Max		
Flow – MGD	Report	Report	1/ 2 weeks	LAC 33:IX.2707.1.1.b
Total Residual Chlorine	---	1.5 mg/l	1/ 2 weeks	Previous permit
TOC	---	50 mg/l	1/ 2 weeks	Previous permit and LDEQ Stormwater Guidance ⁽¹⁾
Oil & Grease	---	15 mg/l	1/ 2 weeks	Previous permit and LDEQ Stormwater Guidance ⁽¹⁾
TSS	---	Report	1/quarter	BPJ ⁽²⁾
pH	6.0 s.u. (Min)	9.0 s.u. (Max)	1/ 2 weeks	Previous permit and LDEQ Stormwater Guidance ⁽¹⁾

⁽¹⁾ LDEQ Stormwater Guidance, letter dated 6/17/87, from J. Dale Givens (LDEQ) to Myron Knudson (EPA Region 6)

⁽²⁾ Reporting requirements for TSS have been established in the permit due to the receiving waterbody's 303(d) impairment for sedimentation/siltation and turbidity.

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Outfall 011 - Process and non-process area stormwater runoff

Parameter	Effluent Limitations		Monitoring Freq	Reference
	Monthly Avg	Daily Max		
Flow – MGD	Report	Report	1/month	LAC 33:IX.2707.1.1.b
TOC	---	50 mg/l	1/month	Previous permit and LDEQ Stormwater Guidance ⁽¹⁾
Oil & Grease	---	15 mg/l	1/month	Previous permit and LDEQ Stormwater Guidance ⁽¹⁾
TSS	---	Report	1/quarter	BPJ ⁽²⁾
pH	6.0 s.u. (Min)	9.0 s.u. (Max)	1/month	Previous permit and LDEQ Stormwater Guidance ⁽¹⁾

⁽¹⁾ LDEQ Stormwater Guidance, letter dated 6/17/87, from J. Dale Givens (LDEQ) to Myron Knudson (EPA Region 6)

⁽²⁾ Reporting requirements for TSS have been established in the permit due to the receiving waterbody's 303(d) impairment for sedimentation/siltation and turbidity.

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Outfall 012 - Process and non-process area stormwater runoff, steam condensate, and cooling tower blowdown from Unit 3

Parameter	Effluent Limitations		Monitoring Freq	Reference
	Monthly Avg	Daily Max		
Flow – MGD	Report	Report	1/ 2 weeks	LAC 33:IX.2707.1.1.b
Total Residual Chlorine	---	1.5 mg/l	1/ 2 weeks	Previous permit
TOC	---	50 mg/l	1/ 2 weeks	Previous permit and LDEQ Stormwater Guidance ⁽¹⁾
Oil & Grease	---	15 mg/l	1/ 2 weeks	Previous permit and LDEQ Stormwater Guidance ⁽¹⁾
TSS	---	Report	1/quarter	BPJ ⁽²⁾
pH	6.0 s.u. (Min)	9.0 s.u. (Max)	1/ 2 weeks	Previous permit and LDEQ Stormwater Guidance ⁽¹⁾

⁽¹⁾ LDEQ Stormwater Guidance, letter dated 6/17/87, from J. Dale Givens (LDEQ) to Myron Knudson (EPA Region 6)

⁽²⁾ Reporting requirements for TSS have been established in the permit due to the receiving waterbody's 303(d) impairment for sedimentation/siltation and turbidity.

C. WATER QUALITY-BASED EFFLUENT LIMITATIONS

Technology-based effluent limitations and/or specific analytical results from the permittee's application were screened against state water quality numerical standard based limitations by following guidance procedures established in the Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards, LDEQ, September 27, 2001.

In accordance with 40 CFR 122.44(d)(1)/LAC 33:IX.2707.D.1., the existing discharge was evaluated in accordance with the Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards, LDEQ, September 27, 2001, to determine whether pollutants would be

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would be discharged “at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any state water quality standard.” Calculations, results, and documentation are given in Appendix A.

The effluent data from the LPDES permit application submitted on October 18, 2006, indicated detection of Copper (50 µg/l) at Outfall 001. However, new effluent data submitted on July 24, 2007, indicated that Copper was not present. Therefore, this Office has made the determination that the initial detection of Copper was most likely an erroneous event. The permittee also retested for Cadmium at Outfall 001, because the analysis from the October 18, 2006 application did not test down to the appropriate MQL. The new data, submitted July 24, 2007, indicated no detection of Cadmium (<1.0 µg/l). New data was also submitted for Total Phenols. The average of all 12 data points was used in the water quality screen.

The following pollutants received water quality based effluent limitations:

None

Minimum quantification levels (MQL's) for state water quality numerical standards-based effluent limitations are set at the values listed in the Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards, LDEQ, September 27, 2001.

IX. Compliance History/DMR Review:

- A. Compliance History – There are no open enforcement actions against the facility as of June 7, 2007.
- B. DMR Review – Below is a summary of the excursions reported between January 2005 and March 2007):

<u>Parameter</u>	<u>Outfall</u>	<u>Date</u>	<u>Limitation</u>	<u>Sample Result</u>
TOC	011	July 2005	50 mg/l	85 mg/l
pH	011	March 2006	6 – 9 s.u.	10.2 s.u.

IX. Endangered Species:

The receiving waterbody for Praxair, Inc. is Subsegment 040401 of the Lake Pontchartrain Basin. Segment 040401 has been identified by the U.S. Fish and Wildlife Service (FWS) as habitat for the Gulf Sturgeon, which is listed as a threatened or endangered species. This draft permit has been submitted to the FWS for review in accordance with a letter dated October 24, 2007, from Boggs (FWS) to Brown (LDEQ). As set forth in the Memorandum of Understanding between the LDEQ

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the LDEQ and the FWS, LDEQ has determined that the issuance of the LPDES permit is not likely to have an adverse effect upon the Gulf Sturgeon. Effluent limitations are established in the permit to ensure protection of aquatic life and maintenance of the receiving water as aquatic habitat. The more stringent of technology and water quality based limits (as applicable) have been applied to ensure maximum protection of the receiving water.

X. Historic Sites:

The discharge is from an existing facility location, which does not include an expansion on undisturbed soils. Therefore, there should be no potential effect to sites or properties on or eligible for listing on the National Register of Historic Places, and in accordance with the "Memorandum of Understanding for the Protection of Historic Properties in Louisiana Regarding LPDES Permits" no consultation with the Louisiana State Historic Preservation Officer is required.

XI. Tentative Determination:

On the basis of preliminary staff review, the Department of Environmental Quality has made a tentative determination to issue a permit for the discharge described in the application.

XII. Variances:

No requests for variances have been received by this Office.

XIII. Public Notices:

Upon publication of the public notice, a public comment period shall begin on the date of publication and last for at least 30 days thereafter. During this period, any interested persons may submit written comments on the draft permit and may request a public hearing to clarify issues involved in the permit decision at this Office's address on the first page of the fact sheet. A request for a public hearing shall be in writing and shall state the nature of the issues proposed to be raised in the hearing.

A public notice will be published in a local newspaper of general circulation and in the Office of Environmental Services Public Notice Mailing List.

XIV. Stormwater Pollution Prevention Plan (SWP3) Requirements:

In accordance with LAC 33:IX.2707.1.3 and 4[40 CFR 122.44(I)(3) and (4)], a Part II condition is

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is proposed for applicability to all stormwater discharges from the facility, either through permitted outfalls, through outfalls which are not listed in the permit or as sheet flow. The Part II condition requires implementation of a Storm Water Pollution Prevention Plan (SWP3) within six (6) months of the effective date of the final permit, along with other requirements. If the permittee maintains other plans that contain duplicative information, that plan could be incorporated by reference into the SWP3. Examples of these type plans include, but are not limited to: Spill Prevention Control and Countermeasures Plan (SPCC), Best Management Plan (BMP), Response Plans, etc. The conditions will be found in the draft permit. Including Best Management Practice (BMP) controls in the form of a SWP3 is consistent with other LPDES and EPA permits regulating similar discharges of storm water associated with industrial activity, as defined at LAC 33:IX.2511.B.14 [40 CFR 122.26(b)(14)].

XV. TMDL Waterbodies:

Praxair discharges utility wastewater, and stormwater runoff to New River (Segment 040401). Segment 040401 is listed on LDEQ's 2005 303(d) List as impaired for Mercury, nutrients (Nitrate + Nitrite as N), phosphorus, organic enrichment/low DO, sedimentation/siltation and turbidity. To date no TMDLs have been completed. TMDLs are scheduled for completion by March 31, 2011, with an EPA backstop date of March 31, 2012.

Based on the type of processes that take place at the facility, mercury is not expected to be present in the discharges from Praxair's Geismar Plant. Therefore, no mercury monitoring requirements have been placed in the permit. Additionally, the presence of nutrients (phosphorus and nitrate + nitrite as N) and pollutants contributing to organic enrichment/low DO are not expected to be present in levels which will cause further impairment of the stream. However, BPJ based limitations for TOC have been maintained from the previous permit and will provide some control of oxygen demand from this facility's discharges. Sedimentation/siltation and turbidity are listed as impairments for the segment. Therefore, a reporting requirement for TSS has been established at all outfalls in order to gather information to assess the need for future TMDLs.

A reopener clause will be established in the permit to allow the inclusion of more stringent or additional effluent limitations and requirements which may be imposed by future TMDLs.